POTENTIAL OF *Artocarpus odoratissimus* (*TARAP*) SEEDS AS BIOPLASTIC

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Final Year Project Report Submitted in
Partial Fulfilment of the Requirements for the
Degree of Bachelor of Science (Hons.) Biology
In the Faculty of Applied Sciences
Universiti Teknologi MARA

JANUARY 2020

ACKNOWLEDGEMENTS

I would like to take this opportunity to extend my gratitude to all the people who guided, encourage and support me during the completion of this project. Foremost I want to thank, Mr Ajimi Jawan, our supervisor for this project, who always guided, encourage and support me during the completion of this project. Special thanks to other lecturer such as Mr Abdul Manap Mahmud, Dr. Patricia Natin and Dr. Dewi bt Tajuddin for their advices and support regarding the completion of this project.

My sincere thanks to Mr Mohammad Hanafi bin Sadli, our Zoology laboratory assistance who have helped and guided me during lab session from the start until the end of this project. Also thank you for allowing us to use the laboratory and all equipment required is been a big help to us.

Finally, my warmest thanks to my family members and friends for always be there for me giving encouragement and continuous support while completing this project.

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ABSTRACT

BIOPLASTIC POTENTIAL FROM *Artocarpus odoratissimus* (*Tarap*) SEEDS

The current condition of the earth because of plastic pollution has raise concern globally. Because of that people started to slowly convert from petro-plastic into biodegradable plastic despite of its characteristics. This study aim to study the potential of *Artocarpus odoratissimus* as bioplastics. The specific objectives involves extraction of starch from *A. odoratissimus* seeds, determining the mechanical properties of *A. odoratissimus* bioplastic in term of water absorption and elongation, determining the biodegradation of *A. odoratissimus* bioplastic and to evaluate the potential of *A.s odoratissimus* as bioplastics. Bioplastic from *A. odoratissimus* was obtained from the starch inside 125 grams of *A. odoratissimus* seeds that is extracted using sodium metabisulfate. The mechanical properties and biodegradation test were done using glycerol as plasticizer that help to hold the hydrogen bond inside the starch to enhanced its properties. Three different volume of glycerol used, which were 2 ml, 4 ml, and 6 ml tested with 70 grams of starch to determine which volume of glycerol produced better characteristics of bioplastic. The mechanical properties tested in terms of water absorption and the elongation of bioplastic. For water absorption bioplastic film immersed in water for 24 hours and elongation ability obtained from stretched bioplastics film. Biodegradation test done by burying bioplastic for 6 day with the interval of 2 days for observation. The result shows that 70 grams of starch was obtained from 125 grams of *A. odoratissimus* seeds. From the mechanical test the water absorption and elongation test shows 6 ml of glycerol is the maximum volume to be incorporated in 70 grams of *A. odoratissimus* starch to enhance the characteristics of bioplastic. The relationship shows $p=0.016$ with mean and standard deviation of 1.791 ± 0.140 for water absorption and $p > 0.05$ with mean and standard deviation of 2.45 ± 0.24 for elongation test. Biodegradation shows A. odoratissimus bioplastic are able to degrade within 6 day and that 6 ml shows maximum volume of glycerol that can be incorporated in 70 grams of starch to shows faster degradation of bioplastic. The mean and standard deviation shows 1.422 ± 0.485 with $p = 0.001$. Thus in conclusion, this indicate that 6ml of glycerol is the optimum number of glycerol to be combine with 70 grams of starch that produced better characteristic of bioplastic due its ability to absorb more water, high elongation, and faster degradation. Recommendation is more on varies amount of starch to be tested with certain amount of glycerol for better study of *A. odoratissimus* seeds as bioplastics.